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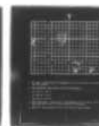
ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
19702A GSRS, MISSILE NUMBER 080, ROUND NUMBER B-16.(U)
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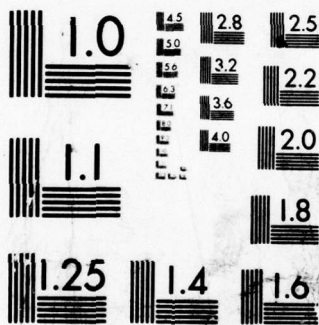
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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
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18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) 1. Ballistics 2. Meteorology 3. Wind		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of 19702A GSRS, Missile No. 080, Round No. B-16, are presented in tabular form.		

410 663 *Shu*

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

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INTRODUCTION

19702A GSRS, Missile Number 080, Round Number B-16, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0835 MDT, 30 May 1979. The scheduled launch time was 0830 MDT.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

SITE AND ALTITUDE

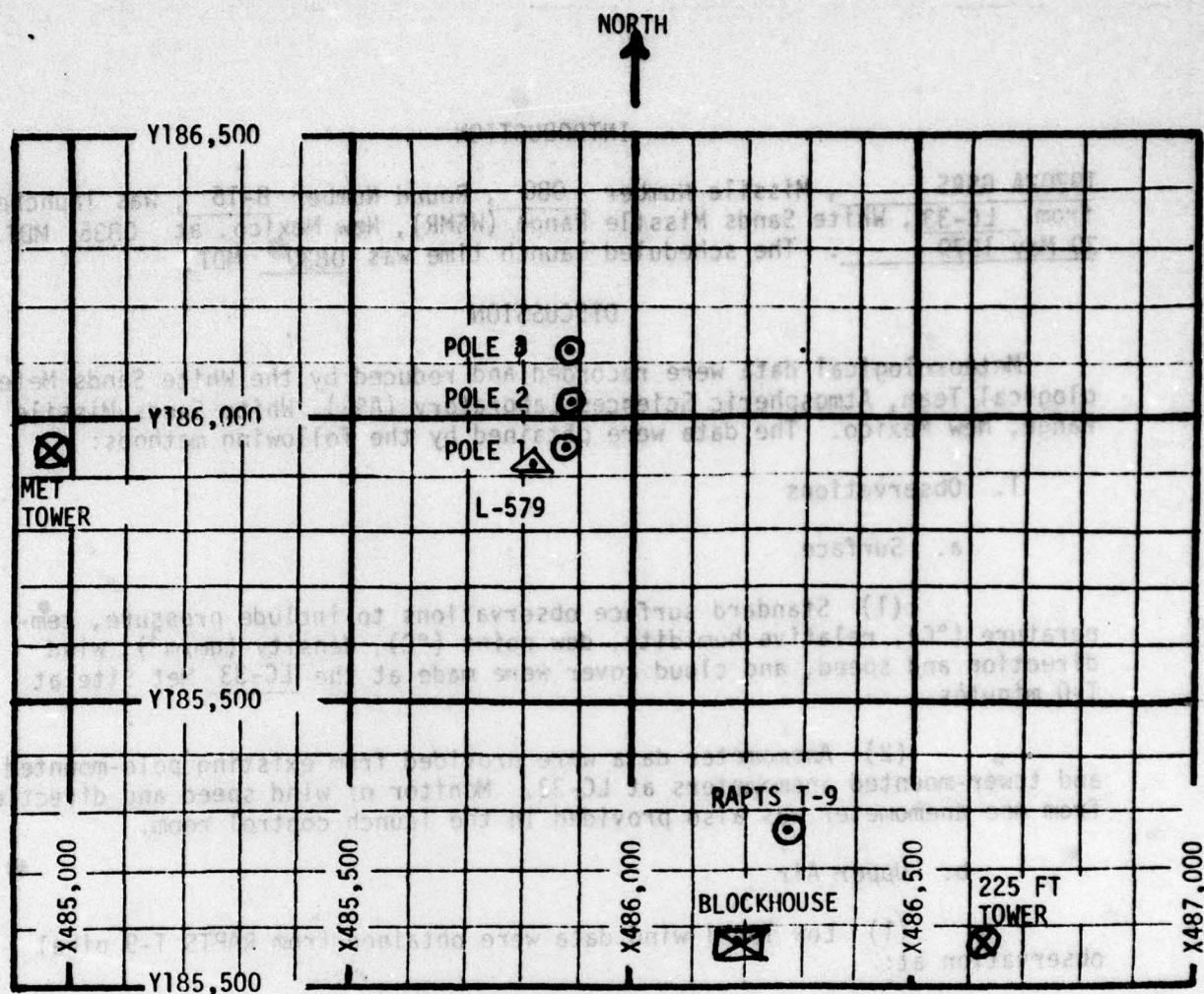
LC-33 1020 meters (30-meter increments) 0820 MDT

LC-33 1020 meters (30-meter increments) 0835 MDT

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 27,500 feet in 500-foot increments.

SITE AND TIME

SMR 0700 MST



1. MET TOWER - 4 Bendix Model T-120 Anemometers at 12 ft, 62 ft, 102 ft and 202 ft with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
 - (a) Pole #1 - 38.7 ft
 - (b) Pole #2 - 53.0 ft
 - (c) Pole #3 - 83.6 ft
3. 225 FT WIND TOWER - 5 Bendix Model T-120 Anemometers at 35 ft, 88 ft, 128 ft, 168 ft and 200 ft with 5 X-Y visual indicators in Blockhouse.
4. RAPTS T-9 - Radar Automatic Pilot-Balloon Tracking System T-9 Radar

TABLE 1. SURFACE OBSERVATIONS TAKEN AT 0835 MDT,
30 MAY 1979 AT LC-33, 19702A GSRS,
MISSILE NO. 088, ROUND NO. B-16

ELEVATION	3977.30	FT/MSL
PRESSURE	879.1	MBS
TEMPERATURE	24.7	°C
RELATIVE HUMIDITY	32	%
DEW POINT	6.9	°C
DENSITY	1023	GM/M ³
WIND SPEED	Calm	MPH
WIND DIRECTION	Calm	DEGREES
CLOUD COVER	1	Ac

NOTE: Wind directions are referenced to the firing azimuth
or true north, true north.

TABLE 2. LC-33 FIXED POLE ANEMOMETER-MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	000	00	-30	065	02	-30	000	00
-20	000	00	-20	065	01	-20	000	00
-10	000	00	-10	066	02	-10	000	00
0.0	000	00	0.0	067	02	0.0	000	00
+10	000	00	+10	067	02	+10	000	00

Type 19702A GSRS, Missile No. 080, Round No. B-16 launched
from LC-33 on 30 May 1979 at 0835 MDT.

POLE #1 = X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL

POLE #2 = X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL

POLE #3 = X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL

NOTE: Wind directions are referenced to the firing azimuth _____
or true north true north.

TABLE 3. LC-33 METEOROLOGICAL TOWER ANEMOMETER-MEASURED WINDS (202 FT. TOWER)

LEVEL #1 12 ft.			LEVEL #2 62 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	000	00	-30	000	00
-20	000	00	-20	000	00
-10	000	00	-10	000	00
0.0	000	00	0.0	109	3.0
+10	000	00	+10	089	4.0
LEVEL #3 102 ft.			LEVEL #4 202 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	000	00	-30	000	00
-20	000	00	-20	000	00
-10	000	00	-10	000	00
0.0	000	00	0.0	000	00
+10	000	00	+10	060	3.0

WTSM Coordinates: X484,982.64 Y185,957.73 H3983.00 (base)

Type 19702A GSRS, Missile No. 088, Round No. B-16 launched
from LC-33 on 30 May 1979 at 0835 MDT.

NOTE: Wind directions are referenced to the firing azimuth _____
or true north true north.

TABLE 4. PILOT-BALLOON-MEASURED WIND DATA (30-METER INCREMENTS)

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
SFC	000	00
30	000	00
60	000	00
90	068	0.5
120	135	0.5
150	074	5.0
180	013	9.5
210	290	9.5
240	206	9.5
270	291	8.5
300	016	7.0
330	018	9.0
360	019	11.0

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
390	011	12.5
420	002	14.0
450	005	14.5
480	007	15.0
510	004	15.5
540	001	15.5
570	358	15.5
600	355	15.5
630	357	14.0
660	359	12.5
690	356	12.5
720	353	12.0
750	350	11.5

Release Point Coordinates (WSTM): X486,037.24 Y486,037.24 H3977.30

Released from LC-33 on 30 May 1979 at 0820 MDT.

Type 19702A GSRS, Missile No. 088, Round No. B-16 launched
from LC-33 on 30 May 1979 at 0835 MDT.

NOTE: Wind directions are referenced to the firing azimuth
or true north true north.

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	346	10.5
810	343	9.5
840	339	8.0
870	344	7.5
900	348	6.5
930	332	5.5
960	315	4.5
990	317	6.0
1020	318	7.0
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

TABLE 5. PILOT-BALLOON-MEASURED WIND DATA (30-METER INCREMENTS)

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
SFC	000	00
30	000	00
60	000	00
90	348	1.0
120	336	2.0
150	315	3.0
180	294	3.5
210	288	3.5
240	281	3.5
270	310	6.0
300	338	8.0
330	353	9.5
360	008	11.0

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
390	007	12.5
420	005	13.5
450	003	15.0
480	001	16.0
510	001	16.0
540	001	16.0
570	002	16.5
600	002	16.5
630	003	15.0
660	003	13.5
690	360	13.0
720	356	12.5
750	351	11.0

Release Point Coordinates (WSTM): X486,037.24 Y486,037.24 H3977.30
 Released from LC-33 on 30 May 1979 at 0835 MDT.

Type 19702A GSRS, Missile No. 088, Round No. B-16 launched
 from LC-33 on 30 May 1979 at 0835 MDT.

NOTE: Wind directions are referenced to the firing azimuth
 or true north true north.

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	345	9.5
810	338	9.5
840	331	9.0
870	321	8.0
900	311	6.5
930	300	6.5
960	289	6.0
990	290	6.0
1020	291	5.5
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

STATION ALTITUDE 9997.30 FEET MSL
30 MAY 79
ASCENSION NO. 157

SIGNIFICANT LEVEL DATA
1500060157
S M R

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

PRESSURE GEOMETRIC
ALTITUDE
MILLIBARS MSL FEET

875.8	3997.3
865.8	4326.2
850.0	4850.6
744.8	8552.1
700.0	10249.6
616.8	13624.4
583.8	15058.2
526.3	17711.9
516.8	18172.4
509.3	18543.1
500.0	19010.8
465.8	20800.9
400.0	24504.9
349.3	27799.9

TEMPERATURE
AIR DEWPOINT
DEGREES CENTIGRADE

24.8	6.5
22.3	2.4
21.6	.8
13.0	-4.1
8.1	-5.0
-1.3	-11.1
-4.0	-19.0
-11.2	-21.0
-10.5	-30.8
-9.4	-31.9
-10.0	-33.1
-11.9	-33.9
-21.5	-39.9
-29.6	-40.7

REL. HUM.
PERCENT

31.0
27.0
25.0
30.0
39.0
47.0
30.0
44.0
17.0
14.0
13.0
14.0
17.0
17.0

HEIGHT
METERS
AGL

1440
1430
1500
1530
1560
1530
1650
1620
1510

DIRECTION
DEGREES

SPEED
KPH

STATION ALTITUDE 3997.30 FEET MSL
30 MAY 79 0700 HRS MST
ASCENSION NO. 157

UPPER AIR DATA
1500060157
S M R

GEODETTIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION -DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
3997.3	875.8	24.8	31.0	1019.7	673.9	30.0	9.9	1.000269
4000.0	875.7	24.8	31.0	1019.7	673.8	30.0	9.9	1.000269
4500.0	860.5	22.1	26.3	1012.3	670.4	23.6	8.6	1.000256
5000.0	845.5	21.3	25.2	997.6	669.4	15.5	7.4	1.000250
5500.0	830.5	20.1	25.3	963.9	668.1	4.4	6.4	1.000246
6000.0	815.8	18.9	26.6	970.4	666.7	349.7	5.8	1.000242
6500.0	801.4	17.8	27.2	957.1	665.3	330.1	6.4	1.000238
7000.0	787.2	16.6	27.9	944.1	664.0	314.7	7.5	1.000234
7500.0	773.3	15.4	28.6	931.2	662.6	301.8	9.2	1.000230
8000.0	759.6	14.3	29.3	918.5	661.3	295.9	11.1	1.000226
8500.0	746.2	13.1	29.9	906.0	659.9	293.6	13.0	1.000223
9000.0	732.7	11.7	32.4	894.0	658.3	295.8	14.0	1.000220
9500.0	719.4	10.3	35.0	882.3	656.6	297.9	14.8	1.000217
10000.0	706.4	8.8	37.7	870.3	654.9	299.8	15.0	1.000214
10500.0	693.5	7.4	39.6	859.2	653.3	301.7	14.9	1.000211
11000.0	680.6	6.0	40.8	847.5	651.6	301.4	13.6	1.000207
11500.0	667.9	4.6	42.0	836.0	649.9	299.9	11.8	1.000204
12000.0	655.5	3.2	43.1	824.7	648.3	296.5	10.5	1.000200
12500.0	643.4	1.8	44.3	813.6	646.6	292.5	9.4	1.000197
13000.0	631.4	0.4	45.5	802.6	644.9	293.2	9.8	1.000193
13500.0	619.7	-1.0	46.7	791.8	643.3	287.4	10.5	1.000190
14000.0	608.0	-2.0	42.5	780.0	641.9	273.7	12.1	1.000185
14500.0	596.4	-2.9	36.6	768.1	640.7	262.2	13.9	1.000180
15000.0	585.1	-3.9	30.7	756.3	639.0	252.8	16.0	1.000176
15500.0	573.8	-5.2	32.3	745.4	638.0	249.0	16.5	1.000173
16000.0	562.7	-6.6	35.0	734.7	636.4	245.6	16.8	1.000171
16500.0	551.8	-7.9	37.6	724.1	634.7	241.3	17.6	1.000168
17000.0	541.1	-9.3	40.2	713.8	633.1	237.2	18.4	1.000166
17500.0	530.7	-10.6	42.9	703.6	631.5	241.3	19.5	1.000163
18000.0	520.3	-10.8	27.1	690.5	631.2	245.0	20.8	1.000158
18500.0	510.2	-9.5	14.3	674.0	632.0	249.5	23.2	1.000152
19000.0	500.2	-10.0	13.0	662.0	632.1	254.3	24.9	1.000149
19500.0	490.4	-10.5	13.3	650.3	631.4	260.5	25.8	1.000147
20000.0	480.8	-11.0	13.6	638.9	630.8	263.1	25.7	1.000144
20500.0	471.4	-11.6	13.8	627.6	630.2	264.1	25.0	1.000142
21000.0	462.1	-12.4	14.2	617.2	629.2	261.8	23.6	1.000139
21500.0	452.8	-13.7	14.6	607.8	627.6	258.5	22.1	1.000137
22000.0	443.7	-15.0	15.0	598.6	626.1	259.1	22.0	1.000135
22500.0	434.9	-16.2	15.4	589.5	624.5	259.4	22.0	1.000133
23000.0	426.1	-17.4	15.8	580.6	623.0	258.0	22.8	1.000131

STATION ALTITUDE 3997.30 FEET MSL
30 MAY 79 0700 HRS MST
ASCENSION NO. 157

UPPER AIR DATA
1500060157
S M R

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARMS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(T.M)	SPEED KNOTS	INDEX OF REFRACTION
23500.0	417.6	-18.8	16.2	571.8	621.4	257.5	23.3	1.000129
24000.0	409.2	-20.1	16.5	563.2	619.8	260.2	23.0	1.000127
24500.0	401.1	-21.3	16.9	554.7	618.3	262.7	22.7	1.000125
25000.0	392.8	-22.6	17.0	546.0	616.7	264.6	22.6	1.000123
25500.0	384.6	-23.8	17.3	537.5	615.2	269.6	22.7	1.000121
26000.0	376.7	-25.1	17.0	528.9	613.6	267.6	23.3	1.000119
26500.0	368.9	-26.3	17.0	520.6	612.1			1.000117
27000.0	361.2	-27.6	17.0	512.4	610.5			1.000115
27500.0	353.7	-28.8	17.0	504.3	608.9			1.000113

STATION ALTITUDE 3997.30 FEET MSL
30 MAY 79 0700 HRS MST
ASCENSION NO. 157

MANDATORY LEVELS
1500060157
S M R

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE	REL. HUM.	WIND DATA	
MILLIBARS	FEET	AIR DEGREE CENTIGRADE	PERCENT	DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4847.	21.6	25.	18.3	7.7
800.0	6557.	17.7	27.	328.1	6.5
750.0	8352.	13.5	30.	294.3	12.5
700.0	10240.	8.1	39.	300.7	14.9
650.0	12227.	2.6	44.	294.5	9.9
600.0	14330.	-2.7	38.	265.7	13.4
550.0	16572.	-8.1	30.	240.6	17.7
500.0	18984.	-10.0	13.	254.3	24.9
450.0	21633.	-14.1	15.	256.7	22.1
400.0	24524.	-21.5	17.	262.9	22.7
350.0	27702.	-29.5	17.		

STATION ALTITUDE 3997.30 FEET MSL
 30 MAY 79 0700 HRS MST
 ASCENSION NO. 157

MRN MANDATORY LEVELS
 1500060157
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

GEOPOTENTIAL ALTITUDE METERS	DIRECTION DEG (TN)	WIND DATA		E-W MPS	DEW PT DEG C	TEMPERATURE		PRESSURE MILLIBARS
		SPEED MPS	N-S MPS			AIR DEG C		
844.	9999.**	9999.**	-9999.**	-9999.**	17	-29.5		3.500+2
747.	263.	12.	1.	12.	18	-21.5		4.000+2
659.	259.	11.	2.	11.	21	-14.1		4.500+2
579.	254.	13.	3.	12.	23	-10.0		5.000+2
505.	241.	9.	4.	8.	12	-8.1		5.500+2
437.	266.	7.	1.	7.	12	-2.7		6.000+2
373.	295.	5.	-2.	5.	11	2.6		6.500+2
312.	301.	6.	-4.	6.	13	8.1		7.000+2
255.	294.	8.	-3.	6.	17	13.5		7.500+2
200.	328.	3.	-3.	2.	19	17.7		8.000+2
146.	18.	4.	-4.	-1.	21	21.6		8.500+2

** WIND DATA NOT COMPUTED DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.